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Situational and gender comparisons of digital game players' preferences for game features and gratifications

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ABSTRACT

As with “new media” fifty years ago, today's “new media” are scrutinized from the uses and gratifications perspective to understand peoples’ reasons for engaging with them. The new media of interest in this paper are digital games. Research is in the early stages with this medium, exploring player gratifications from game playing and preferences for game playing features. This research has consistently found gender differences for both, with men more preferring competition gratifications and violent games, and women preferring socializing gratifications and puzzles. Past research has mostly looked at digital games in aggregate, not differentiating between game playing situations. This study measured the game playing gratifications and feature preferences of male and female players for three game playing situations: playing a game players liked, one they disliked, and one they desired. Generally, gender differences from past research were reconfirmed as men had higher gratifications and preferences overall than women. Additionally, game playing situation differences were significant, with imagined games rated highest and disliked games lowest on all game playing gratifications and game feature preferences. In addition, 64,3% of the gender by situation interactions were also significant, showing that introducing game playing situation complicated the picture with some gender differences disappearing depending on the game situation. These results showed a tendency for male players to be receiving what they desired from the games they liked, whereas the female players were not having these desires met.

INTRODUCTION

The digital game industry has become a powerful media and cultural force over the past three decades. (1) According to the Entertainment Software Association, an estimated 65% of US heads of households report they play video and computer games, with 60% of these players being male and 40% female. (2) In 2006, players spent an average of 6.8 hours a week playing games, or up to a fourth of all their leisure time. By 2008, 65% of the US population plays video games and/or computer games, helping to fuel growth of the industry at a higher average annual growth than the entire US economy from the period of 2003 to 2006.

With the industry's growing presence in the entertainment media marketplace, there have been numerous studies as to why children, adolescents and adults play digital games. For public policymakers, the concern over "why" results from concerns as to "what effects" playing games may have. Additionally, while digital games are a high revenue industry, the most recent data suggests the industry rarely recoups the cost of production and marketing (Fabricatore, Nussbaum & Rosas, 2002). From an industry standpoint, it is a marketing necessity to understand what a player wants from a game, why a certain game is not being played, and why certain people are not playing.

To understand this engagement, our study sought to answer these questions: Why do people play digital games? Why do they start? Why do they stop? As we will discuss, a number of reasons have already been proffered to answer these questions, ranging from focusing on the gratifications sought and obtained by the player to features of the game's design. While our general purpose is to further this line of research by examining this bifurcation of engagement, we have two additional more specific purposes. First, we investigated the consistent findings regarding gender difference in engagement with digital games. In addition, to intersect the literature currently done on engagement, and to trouble the gender difference findings, we added an initial investigation of the impact of situationality. To this extent, our specific question was: To what extent do gender differences interact with a

specific game playing situation in terms of how players evaluate games, focusing on their preferences for gratifications and game features?

As mentioned, most of the literature to date that has attempted to answer the general question of why players engage with games has focused on two primary clusters of variables: the gratifications or need fulfillments the players expect and/or get from their game playing; and, the design features of the games, from technological features of the medium to aspects of the game's content, which are assumed to attract players. The literature on gratifications, coming primarily from the media studies tradition of uses and gratifications (U&G), has shown that it is fruitful to study digital games as other media have been studied by comparing the gratifications players receive from different types of games. The literature on game features, coming largely from game designers and communication technology researchers, has also demonstrated that certain features appear to be preferred by specific groups of players.

While predictors have been put forward to examine these differences in preferences, for either gratifications or game features, probably the most commonly studied predictor is gender, due largely to the discrepancy in the amount of engagement found between men and women. This research, over two decades of collecting data, has generated rather consistent results. (3) Yet, while largely consistent, not all studies agree. Hartmann and Klimmt (2006), in examining a specific game, found women to prefer social interaction capabilities, while Lucas and Sherry (2004), in generalizing across games, found social interaction to be the lowest mentioned gratification for women. Something else must be at work then.

There are at least two interruptions that can be made to this status quo that may shed new light on the hows and whys of players engaging with digital games. First, there is the separation between these two emphases -- player gratifications versus game features. For the most part, these are two distinct trajectories in the quantitative literature. In contrast, when qualitative work was conducted to generate the reasons players gave for why they play, the responses from the players seemed to bridge this divide (Griffiths, 1997; Malone, 1981a, b;

Mudrock, 1985; Yee, 2005). However, the majority of quantitative work still maintains this bifurcation. (4)

In fact, for all media it is known that audiences/users do make media choices to match their interpretations of media and content features, such that their choices are informed by their expectations of how their needs could be gratified (Palmgreen & Rayburn, 1982; Rayburn & Palmgreen, 1984; Swanson, 1992). Players have expectations of features in advance that influence their decision to start playing. Further, specific features may or may not be encountered while playing, which would influence a player's decisions to continue or stop playing. Thus, in a model to understand media use, the gratifications obtained are not wholly controlled by the features of the media and/or content, but also by the interpretations, expectations and other contributions the user brings to the equation. Given that digital games inherently require higher levels of active engagement than other media use, we can expect that this intersection of gratifications and game features would be prominent (Rubin, 1993; Rubin, 2002; Sherry, 2004).

As mentioned, gender has been a consistent variable used to predict differences of gratifications and preferences as a way to understand the gender gap in game play (Reinhard, 2005). Due to this high prevalence in the literature, we decided to use this sociodemographic category as a predictor in this study. Further, we hypothesized that introducing a second predictor -- one that would allow us to examine how gender differences might vary under different conditions -- would be a useful modest step for implementing our purpose. For this purpose, we chose to introduce game playing situation as a unit of measurement. What we mean with the introduction of situation into the research will be explained later in this introduction.

Most of the game playing literature to date has examined game playing as a generalized behavior, one that is aggregated and assumed to be consistent across different games and playing situations. Thus, as examples, players have been asked to indicate their gratifications

for playing video and/or computer games in general, without taking into account specific games (Chou & Tsai, 2007; Phillips, Rolls, Rouse & Griffiths, 1995; Wood, Griffiths, Chappell & Davies, 2004), or they have been asked to talk about game features for a specific game and not asked compare them to other game playing situations (Fabricatore et al, 2002; Mehrabian & Wixen, 1986).

This tendency has been symptomatic of most studies that have investigated media use (Dervin & Song, 2005). Only recently has the turn toward situationality been called for (Denham, 2004). Even then, however, situation has been conceptualized as static or unvarying, a box into which the media engagement is placed, with the focus placed on understanding the characteristics of this box as it impacts engagement. Other bodies of research, such as that coming from the field of library and information science, have proposed treating situation as a variable that changes across time and space. Indeed, we are now beginning to hear the same calls from the media studies field (Denham, 2004). Thus, our second empirical purpose for this study was to add an emphasis on situationality as a variable rather than a constant context to our examination of gender as a predictor of game playing gratifications and game feature preferences.

There are three bodies of theoretical literature that inform our study. One is the uses and gratifications tradition (U&G); the second is the primarily empirical work coming from communication technology studies focusing on the design features of games which may attract players; and, the third is the theoretical work focusing on situationality as a predictor of communication behavior. We discuss briefly in the next sections how each literature informed our study's conceptualizations.

Focus on game playing gratifications: The U&G literature

From U&G, we incorporated the premises that people perceive problems, needs or desires in their life, and from these perceptions they develop different motives for problem-solving, or gratification-seeking, behavior that can potentially translate to media consumption

(Lucas & Sherry, 2004; Palmgreen, 1984; Sherry, Lucas, Greenberg & Lachlan, 2006; Swanson, 1992). We drew upon U&G research in building and conceptualizing game playing gratifications, turning to both qualitative studies that interviewed players and created categories from these discussions, as well as to more quantitative studies that used these or similar categories from classic U&G typologies to gauge players' evaluations of these categories as applied to a particular game or gaming itself. By examining these studies, we used a grounded categorizing scheme to group similar gratifications as presented by researchers -- either already in pre-defined categories or those presented as simple statements from players -- to create mutually exclusive game playing gratifications. This review yielded the seven gratifications listed in Table 1, which lists the name we assigned to each gratification, the specific items used in data collection, and the literature sources from which we gleaned each category. Brief definitions follow:

- Fantasy. Fantasy is defined as the desire to experience a world, a life and/or an activity one cannot experience in one's real life experience, to explore new situations and even escape reality.

- Competition. Competition is defined as the desire to be better than someone else at the game -- to have the higher score, to beat all challengers, to have supremacy over the game and others who play.

- Challenge. Challenge is defined as the desire to defeat something perceived as difficult for the intrinsic reward of self-satisfaction, knowing that one can overcome struggles and frustration -- it is defeating a game for the knowledge that one can successfully complete something difficult.

- Socializing. Socializing is defined as the desire to spend time with others while playing the game, with these others being present at the site of play or virtually present through Internet connections. Also, this desire could be interpreted as using the game as a substitute or alternative to companionship that cannot be present.

- Mood Management. Mood Management is defined as the desire for equilibrium in one's affective states, and any state of disequilibrium will motivate a person to correct this, such as elevating low affect (such as sadness) and reducing high affect (such as stress).

- Diversion. Diversion is defined as the desire to displace one's responsibilities by engaging in something more enjoyable. Similar to escapism, it does not require the desire for Fantasy to replace reality, only for the activity of playing the game to replace some other activity, or to just be an appealing activity when there is nothing else to do.

- Solitude. Solitude at first glance may be just the opposite of Socializing, but the desire with Solitude is defined as more for enjoying one's time alone without any particular need for others being present, either physically, virtually or by some media surrogate.

Focus on game feature preferences: The communication technology literature

The second group of studies we enlisted dealt with the medium and content aspects of the engagement, coming largely out of communication technology fields. As with gratification studies, numerous attempts have been made to classify what players see as the most important aspects of games as they impact enjoyment of playing. These important aspects have been described in two ways. First, there are the elements fundamental to the nature of playing the game, or the elements that impact the actual interaction, with these elements linked to both the technology used to play the game as well as to the structure of the game. Second, there are the features of the game's content, such as narrative and characters, which may be influenced by the technology used to play the game. Again, both aspects have been reported via qualitative and quantitative methods. For this study we analyzed the aspects as reported in the literature and then grouped and conceptualized as game feature preferences. This literature review yielded Table 2, which shows seven game feature preference categories, the specific items used in data collection, and the literature sources used to glean these categories. Brief definitions follow:

- Appearance. Appearance is defined as the sensory experience of the game world, and includes the vividness of detail in the graphics and sound effects, and the overall realism of the portrayal.

- Narrative. Narrative is oftentimes defined as key aspects of game design, although genres do exist that do not have narrative. Most games do have stories to some extent, even if they do not appear central to game play.

- Characters. Character, as with narrative, may not occur in all games. Characters provide the player with a chance to role-play or express themselves through the selection and/or the customization of the character through appearance and skill level. The literature suggests that the combination of characters and storyline can improve game engagement through identification.

- Control. Control is defined as how much the player determines the progression of the game. It begins with how the player perceives the method used for interacting with the game, such as a keyboard or handheld controller. Another impact on control is how much of a fit there is between the player's abilities and the game's requirements, as a mismatch may make it harder for the player to control the game as is needed for successful completion.

- Complexity. Complexity is defined as a content-specific feature and varies between and within genres, and sometimes even within a game should the game have different difficulty settings. Design features include the number of and requirements to defeat goals, the amount and type of performance feedback a player receives in striving for the goals, and the method needed to achieving goals.

- Curiosity. Curiosity is defined as a desire for the game to surprise the player. Game design features can influence the level of novelty the game provides, such as the appearance and progress of the game having new and even surprising elements designed into them.

- Immersion. Immersion is defined as the ability of the game to keep the player's attention engaged. Also known as "presence," it is the extent to which the player feels present in the game and not in the actual physical surroundings. For some games, this is a built in technological feature while for other games it may be a consequence of content features.

A turn toward situationality

The extant literature that has focused on gender has found mostly consistent differences in men and women players' game playing gratifications and game feature preferences (Funk, 2001; Kafai, 1998; Lucas & Sherry, 2004; Martinson, 2002; Reinhard, 2005). Women have been said to prefer nonviolent games that allow for more socializing with friends or solitary games requiring puzzle solving skills. Men have been said to prefer violent games that allow them to compete with each other or themselves as they attempt to beat their best scores. Sherry (2004), by using flow theory, proposed that men and women differ in their cognitive abilities, which interacts with varying gaming requirements and cause men and women to play different types of games. These preferences for gratifications and/or game features have been said to differentiate how long and how frequently players play (Colwell, Grody, & Rhaiti, 1995).

The various theories all have their merits in explaining the observable differences, and most likely it is a combination of the theories that can explain the complex system of gender

impacting a person's engaging with digital games. To respect the theories and the complexities they address, we reasoned that what was needed was to maintain the essential model of the extant literature but step outside it sufficiently to allow a different kind of comparison to be made by gender -- a comparison that might examine how gender differences vary across different game playing situations.

As mentioned above, we are seeing an increase in the emphasis of situation-based media use. However, situation is typically held constant, with its characteristics studied as a slice of time and space, without any attention paid to comparing across different slices. (5) A few studies have begun to compare media use in situated ways; that is, to compare different situations of engaging with media products to one another to deconstruct the complexity that is media use. Dervin and Song (2005) compared users' gratifications of different media as they were discussed in different situations, while Reinhard (2008) considered how a person's sense of gender interacted with different engagings with gendered media. However, because the long tradition of media studies work, particularly quantitative studies, has conceptualized media use primarily as an attribute of habitual user behavior or, particularly qualitative studies, as bound by specific contextual factors, we see relatively little theoretical work in media studies on the concept of situationality. One thus gets a picture of situational differences only by examining differences across studies, which does not yield the same information as understanding situational differences that one individual experiences as they move from situation to situation.

Situationality as an emphasis in media studies has not advanced to the extent that it has in library and information science (LIS). That field has a robust literature labeled under the genre name "information seeking in context" (Dervin & Foreman-Wernet, 2003; Savolainen, 2004; Vakkari, Savolainen, & Dervin, 1997). This line of work has a direct analog to the work in media studies because it is concerned as well with both information utilities (i.e. gratifications) and information characteristics (i.e. features). It is beyond our purpose here to review the foundations of this body of work in depth. Briefly stated, drawing heavily on systems theory,

chaos theory, and the communication theorizing work of Carter (Carter, 2003) and Dervin (Dervin & Foreman-Wernet, 2003), its premises are that while communication behavior is in part habitual, it's very embodiment and anchoring in changeable situations means that it always has the potential for changing. These changes could be flexible in the sense that the actor has developed repertoires of contingent communicative behaviors and selects the one best suited for negotiating the situation; they could be inventive in that the actor sees self as facing new situational conditions and constructs new orientations to those conditions; it could be capricious in that for the actor the situation is so new that either consciously or unconsciously he/she is floundering and/or testing new alternatives. A robust line of work has confirmed the hypothesis that situational differences make a difference in the context of information seeking and use (Dervin & Foreman-Wernet, 2003; Fisher, Naumer, Durrance, Stromski & Christiansen, 2005; Savolainen, 2006), and initial steps have been taken in communication studies to conceptualize situation this same way (Kayany, Wotring & Forrest, 1996; Wendel & Dellaert, 2005).

Based on this conceptualization, we introduced situationality to implement our purpose of examining how both game playing gratifications and game feature preferences of men and women vary under different conditions. In selecting our situational measure, we reasoned that a modest but useful place to start was with the implied situationality that has driven much of the attention to game features -- i.e. the hypothesis that players pursue games whose features make the game playing situation one they like and eschew features that make the game playing situation one they do not like. For our three category measure of game playing situation, the first two categories were based on actual playing experiences: playing a game I liked; and, playing a game I disliked. We introduced a third: imagining a game I would like created so I could play it. (6)

There has been a long tradition in communication studies that has measured attitudes and behavior in hypothetical situations, where researchers present participants with a situation they have not personally experienced. In contrast, the present study introduced the idea of an

imagined ideal anchored in real experiences. As documented in the information seeking in context literature, users who use media systems do actively imagine ideal alternatives. The introduction of an imagined ideal here is not based on the introduction of a situation that game players have not experienced, but rather asking players to tell us about that imagined game they would want to play that is based on their past experiences with games. Because our survey was not intended to be only for hardcore gamers, those who have played many different types of games, it was hoped that putting in a situation that required players to consider a game playing situation they desired we could capture the sentiment that the industry has yet to create something they wanted to play, and perhaps understand what could turn non-players into a players.

Study overview

As indicated above, our purpose for this study was to enter the literature on gender differences in game playing with two variations on the extant literature. One of these was to include male and female assessments of game playing gratifications and feature preferences in the same study, something rarely seen in prior literature. The second was to examine how gender predictions of these measurements of game playing vary across game playing situations. For purposes of this study, game playing situation was defined as each player's report of a game they liked, a game they disliked, and an imagined game they desired. We specified only guiding research questions rather than hypotheses given the paucity of empirical and theoretical work directly pertinent to our focus. In general, we expected gender differences from past literature to be reconfirmed. But, we expected situation differences as well. And, we expected gender differences to be complicated and mitigated at least partially by situation differences.

> RQ1: How do men and women players differ on their game playing gratifications and game feature preferences?
>
> RQ2: How do the three game playing situations differ on the reported game playing gratifications and game feature preferences?

RQ3: To what extent do the player's gender and the specific game playing situation interact to impact game playing gratifications and game feature preferences?

METHOD

Sample

Students were recruited from communication courses from a large Midwestern university. These volunteers received class credit for taking the survey. Participants were told they need not have any experience playing either video or computer games, resulting in a sample of 320 completed surveys. Of these surveys, only 5.9% indicated they had not played any digital games within the past year. For the analysis presented in this study, only those participants who indicated having played either video or computer games at least once a month for the past year were selected for analysis, resulting in a sample of 213 participants. Dropping the sample size also allowed for greater gender equality, where the resulting sample had 50.7% women and 49.3% men. The average age of these 213 participants was 22, with a range of 18 to 67. The average age when these participants began playing digital games was reported to be 7.5 years old. The most common self-reported ethnicity was Caucasian (83%), with African second (8%) and Asian third (4.7%).

Measurements

Game playing situations. As discussed above, there were three game playing situations participants were asked to consider when evaluating their game playing gratifications and game feature preferences. These game playing situations could involve games they were currently playing or had played at some time in the past, and could be either a computer or video game. The first game playing situation asked participants to recall a game they really liked playing, defined here as Liked Game. The second game playing situation asked participants to recall a game they really did not like playing, defined here as Disliked Game. The final game playing

situation was imagined, asking participants to think about a game they wished someone would design for them to play, defined here as Desired Game.

Game playing gratifications and game feature preferences. The 7 categories of game playing gratifications involved 21 sub-measures (scale items as arrayed in Table 1), and the 7 categories of game feature preferences involved 19 sub-measures (scale items as arrayed in Table 2). In data collection, respondents were asked to rate each of their game playing situations of the 40 sub-measures as to how good the item was in relation to the game they were recalling for that game playing situation. They rated each item on a scale of 1 to 7, where 1 was "very bad", 4 was "neutral", and 7 was "very good."

No factor analysis was conducted to statistically validate the grouping of these sub-measures into their intended categories. We purposively chose a conceptual application of the scale items to the categories as they were gleaned from the literature review. The reason for this was that while examining the statistical interactions within and between the two clusters is clearly an important future purpose, we wanted to stay as close as possible to the extant literature and set up a study where we could first examine the two clusters working in tandem prior to moving to statistical combinations that would be less easily compared with the available literature. The scale items intended to measure each category did show strong validity as the range of internal consistency reliabilities, shown by their Cronbach's α were all between 0.85 and 0.95, with only three lower than 0.90.

For our analyses, the scale items as arrayed in Table 1 and Table 2, were averaged for their respective category within each of the game playing situations. For example, the two items for Fantasy were averaged together separately for each of the three game playing situations, providing three variables for analysis purposes, i.e. a fantasy score for each of the three situations. Thus for statistical analysis we were using as our criterion 7 game playing gratifications and 7 game feature preferences

Procedure

Participants were recruited from their classes, and all arrangements were handled via email for participants to gain access to the online survey. The survey was conducted using the website SurveyMonkey.com, an online survey provider. Because the survey was housed with an online provider, participants were allowed to take the survey from any computer they desired. After students indicated their interest in taking the survey and returned a signed consent form, they were assigned an ID number and given the URL to access the survey. All IP address information was removed from the collected database, and ID numbers were only assigned to ensure that students would receive their class credit for completing the survey.

Analysis

As one of our predictors in this analysis was the comparison of different game playing situations within the same participant's experience, our main statistical test relied on a repeated measures ANOVA. Gender of the player was treated as a between-subject variable, and the three game playing situations were entered as the within-subject variable. From this test we were able to determine the main effects for both gender and game playing situation, as well as the interaction of gender and game playing situation. Main effects for game playing situation were examined using paired t-tests. Interactions effects were investigated in two directions. First, within either gender, paired t-tests were employed to see how the game playing situations varied amongst women and amongst men. Second, within game playing situations, ANOVAs were conducted to investigate the extent to which men and women differed given a specific game playing situation.

RESULTS

Game playing gratifications.

The results for the repeated measures on the game playing gratifications can be found in Table 3. Each part of this analysis will be discussed briefly here, but readers are encouraged to study Table 3 for exact information about each game playing gratification.

Gender differences. Across all three game playing situations, gender differences were significant at $p<.05$ or greater for all 7 game playing gratifications. Men consistently evaluated these measurements as being better than women did. This is consistent with previous research showing that men are overall more favorable towards digital games. However, when these game playing gratifications were tested within each of the three game playing situations, the overall difference was no longer consistent. As seen in Table 5, while the overall difference held for the Liked Game, women closed the gap for the other two situations. In fact, for Disliked Game, there were no significant differences between men and women on their evaluations as to how well the game gratified Socializing, Mood Management, and Diversion. When evaluating the measurements for the Desired Game, there was no gender difference again on Socializing.

Game playing situation. Comparing the evaluations of the game playing gratifications for each game playing situation, there was another consistent pattern that had only one deviation, as seen in Table 3. Across 6 of the 7 (85.7%) game playing gratifications, players' evaluations of these measures were highest in the Desired Game and lowest in the Disliked Game, with Liked Game in the middle. Only Diversion had a different pattern, with Desired Game and Liked Game not significantly different from each other, but both were significantly higher than the evaluations in Disliked Game.

Gender by situation. Finally, the repeated measures calculated the interaction of player's gender and game playing situation as an influence on the players' evaluations of the game playing gratifications. All significant interactions are plotted in Figure 1. Only two game playing gratifications did not have a significant interaction: Solitude and Diversion. To explore the significant interactions of the remaining 5 measures, a series of paired t-tests were conducted to compare game playing situations within each gender. These results are depicted in Table 3. These paired t-tests indicated that overall the game playing situation differences across men found 4 of 7 (51.7%) game playing gratifications had no differences in rating

between Liked and Desired Games. Whereas for women, 6 of the 7 (85.7%) game playing gratifications had the ratings for Desired Games as the highest of all three.

This significant finding highlighted the overall tendency, shown in the interaction plots in Figure 3, for men to rate all game playing gratifications similarly for both Liked and Desired Games, leaving Disliked Games alone with lower ratings. However, as seen in the plots, this pattern was the opposite for women for all game playing gratifications except Diversion. For women, their evaluations were more similar for Liked and Disliked Games, which were both lower than their evaluations for Desired Games.

Game feature preferences.

The results for the repeated measures on the game playing gratifications can be found in Table 4. Each part of this analysis will be discussed briefly here, but readers are encouraged to study Table 4 for exact information about each game playing gratification.

Gender differences. As with the game playing gratifications, across all three game playing situations, gender differences were significant at $p<.05$ or greater for all 7 game feature preferences. Again, men consistently evaluated game features as being better than women did. However, when these game feature preferences were tested within each of the three game playing situations, the overall difference was no longer consistent, in ways similar to the results for game playing gratifications. As seen in Table 6, while the overall difference held for the Liked Game, women again closed the gap for the other two situations. In fact, for Disliked Game, there were no significant differences between men and women on their evaluations as to their preferences for Complexity and Curiosity. When evaluating the game features for the Desired Game, there was no gender difference on Characters.

Game playing situation. Comparing the evaluations of the game playing gratifications for each game playing situation, there was another consistent pattern, as seen in Table 4, which mirrored the pattern found for the game playing gratifications. Across all game feature

preferences, players' evaluations of these measures were highest in the Desired Game and lowest in the Disliked Game, with Liked Game in the middle.

Gender by situation. Finally, the repeated measures calculated the interaction of player's gender and game playing situation as an influence on the players' evaluations of the game feature preferences. All significant interactions are plotted in Figure 2. Two game feature preferences did not have a significant interaction -- Control and Complexity -- and a third had only a near-significant trend at $p<.10$ -- Immersion. As with the game playing gratifications, a series of paired t-tests were conduced to compare game playing situations within each gender, and these results are depicted in Table 4. These paired t-tests indicated that overall the game playing situation differences held across both genders, where Desired head the highest ratings overall.

However, as with the game playing gratifications, the interaction plots showed gender variations within situations. That is, the pattern seen in the interactions for the game playing gratifications can also be clearly seen in the 5 significant interactions for the game feature preferences. As shown in the interaction plots in Figure 3, men rated these game feature preferences similarly for both Liked and Desired Games, leaving Disliked Games alone with lower ratings. However, this pattern was the opposite for women for the same measurements. For women, their evaluations were more similar for Liked and Disliked Games, which were both lower than their evaluations for Desired Games. Thus, the same pattern seen for game playing gratifications was found for game feature preferences. While for men their Liked Game evaluations were closer to their Desired Game evaluations, for women, their Liked Game evaluations were closer to their Disliked Game evaluations.

DISCUSSION

In undertaking this study, our purpose was to address several questions in regards to our understanding of players' engagement with digital games. First, as with other media

channels, we sought to understand what compels people to engage with digital games; what are the underlying elements that influence starting, continuing, or stopping this engagement? Two decades of research has been conducted on this topic, with two mostly separate emphases: one from U&G research focusing on gratifications sought and/or obtained; the second from the communication technology fields focusing on game features, as anchored in technology and content. In this study, instead of conflating these elements, we wanted to see how these conceptualizations would differ depending on two additional elements: gender and situation. In terms of gender differences, there has likewise been a long emphasis in digital games studies focused on understanding the often observed gender discrepancy in amount and type of games played. Gender differences have focused on both preferences for gratifications and game features in the hope that understanding each gender's preferences could explain this gender gap.

While the present study replicated the emphasis in past work on examining how men and women players differ in their evaluations of gratifications and game features, we added an additional element to the equation by considering the role of situation. The idea of viewing situation as itself a variable when considering media use has only recently begun being discussed (Denham, 2004; Dervin & Song, 2005). Its application here is one such step in interrogating how a player's engagement with a medium may be different across a number of situations that vary based on some characteristic. In this study, we held this variability to an admittedly simple level by having players evaluate their game playing gratifications and game feature preferences for a game they liked to play, a game they disliked playing, and a game they wished was created for them to play.

The results of this foray into understanding the situationality of players' engaging with digital games indicated that this introduction did indeed interrupt much repeated results on how the genders differ in their evaluations of digital games. This result adds to our understanding of

why men and women differ in not only the hows but the whys of their engagement with digital games and the observed gender gap in reported playing of digital games.

Conclusions

In general, as confirmed by the fact that 100% of the gender comparisons on all the gratifications and game features were significant across the three game playing situations, men were once again shown as being more engaged with digital games. Men consistently evaluated all the preferences as being better provided for by games than women did. Even when comparing within each of the three specified game playing situations, this pattern largely held. This was especially true when players were rating a game they liked playing. However, in the other two situations, the gap did narrow in such a way that there was no significant difference found between them for four game playing gratifications and three game feature preferences.

In considering how the players' evaluations compared across the game playing situations, regardless of the player's gender, we find that all differences were significant. For thirteen of these fourteen preferences, the pattern was exactly the same. Evaluations in relation to desired games were the highest, followed by the evaluations for liked games, with evaluations for disliked games being the lowest. Only the game playing gratification Diversion had a slight deviation from this pattern, in that the players' liked game was not significantly different from their desired game, while both remained higher than the disliked game. Overall, then, we see a tendency for players to prefer imaginary games gratifications and game features that are indeed better than those offered even by the games they said they liked playing. Common sense alone suggests this is reasonable; while we may like what we have, we always want something more, something better.

This picture became very interesting when we investigated the interactions between the player's gender and the three game playing situations. In total, 9 of 14 (64.3%) gratifications and game features had significant interactions with one additional game feature showing a near significant tendency. This large number of interactions shows a definite pattern for both

gratifications and game features. Men were evaluating their game playing situations in such a way that both their liked and desired games were typically higher than how they evaluated their disliked games. The pattern mimicked the overall pattern found for situation differences. Women, on the other hand, did not rate their liked games so highly. In fact, the interactions showed that they were more likely to evaluate the gratifications and game features lower for both their liked and disliked games when compared to the men, with the games they desired to play being higher than either.

Implications

The results as found in this study point to at least two major implications. First, while overall the gender differences found were as commonly reported in previous literature, the fact that we saw a break from the overall pattern when examining gender differences on a situational-level indicates that prior research that has defined digital game playing as aggregate behavior does not provide a full picture. When men and women have been asked to consider the entirety of their experiences playing digital games without differentiating for specific engagements, they seem to have been reporting the expected, stereotypical responses that highlight how men are more favorable towards digital games overall. However, when male and female players' preferences for their games were considered on a level that asked them to address specific games of their own choosing, we see a more truthful accounting of how they see their engagements with these games. Such a finding would be expected, given research on situationality in the field of library information sciences. Allowing the player to describe their media use in terms of their recalled life allows them to articulate thoughts that, not based on generalizations or hypotheticals, are closer to their lives as experienced (Dervin & Foreman-Werner, 2003).

The second major implication we see in these results comes from the interactions between players' gender and game playing situations. For men, these results suggest that their preferences for how the digital games should be designed and the gratifications they have

sought from these games are being largely provided for. Men indicated that if they were to design a game they really wanted to play, then this desired game would be similar to the games they already like playing. Women, on the other hand, do not appear to be so well provided for. Their evaluations of games they said they actually liked playing were closer to how they saw games they did not like playing and not as close to games they would design to play -- and this pattern became clearer when comparing it to the men's pattern. Their evaluations for desired games indicates that there is still a dearth between what games are being offer to them and what they want out of their games.

Of course, this last implication brings back the fundamental question of this gender gap. Is it that women evaluate their games differently, such that they want different gratifications or game features than men? Not necessarily. As the within situation gender differences indicated, there were certain times when men and women were evaluating games the same way for a specific gratification or game feature. If it is not an issue with the player, then is it an issue with the game's design? Are there simply not enough games out there marketed towards women, or are women not familiar with the array of possible games to play? Unfortunately, answering these questions is beyond the scope of this study. It is hoped that the results obtained, with the application of situationality to gender differences, may inspire others to take up the call for a new way to investigate the question of why players engage with this new media.

Limitations

Indeed, this was only an initial step in a new way of understanding this engagement. As it is only the beginning, future studies may want to address the questions raised by this study, and to expand upon the conceptualizations discussed in this study. There are a number of possible avenues for further pursuit indicated by the admitted limitations of the study, but we would like to highlight two here.

First, the measurements of the game playing gratifications and the game feature preferences relied only on the conceptualization of these categories. The items intended to

measure each category was averaged with its brethren, with no attempt to conduct a statistical factor analysis to verify that these scale items were indeed measuring the categories as we defined them. Our reasoning for not conducting such a test was to remain as close as possible to what we saw as being the extant categories as described in previous literature. Conducting a factor analysis to validate these items may have ended up creating another layer of categorizations that would only complicate what had been found in the literature to date. As we were already imposing categories across the various previous findings, we did not want to start this initial interrogation of situationality by possibly further distancing ourselves from the literature as it stood. Further studies should attempt to prove the validity of the scale used to measure the gratifications and game features, even to the point of seeing how these two separate conceptual sets overlap in how they are preferred by players.

However, before such a factor analysis is conducted, it may be judicious to conduct a qualitative study of these conceptual sets along the same lines as this study; that is, to ask men and women to discuss their engagement with different types of games in different situations in their own words. It is possible that by allowing players to use their own words to express their interpretations of their engagements, the results seen for gender differences within situations may further disappear. The case may be that women would evaluate as highly the same preferences that men did if they could use their own words and not terminology imposed upon them by scale items; or it may be the reverse, that men would evaluate the same as women. Funk (2001) indicated a potential occurrence of this when boys and girls both described liking the same content of games, only boys called it "violence" while girls called it "action, adventure". The researcher surmised that this was because it was more socially acceptable for girls to describe such content this way. Perhaps women would describe competition differently than "bragging rights," or men might describe the importance of their characters in terms other than the character's appearance or the idea of socializing in terms that do not emphasize sharing. Until a more phenomenological and situationally based investigation of how men and women

are actually interpreting their game playing engagements is conducted, these possibilities remain tantalizing.

ENDNOTES

(1) For the purposes of this study, digital games were defined as any form of interactive gameplay that requires some level of computer technology in order to operate. This definition subsumed games found on computers consoles or handheld devices and known by a wide variety of terms -- e.g. computer, video, internet, play station, MUDS (multi-user dungeons), and MMORPGs (mass multiplayer online role playing games).

(2) The Entertainment Software Association is the organization that monitors the ratings and market for digital games. These figures come from the Entertainment Software Association's latest release about the industry, "2008 Sales, Demographics and Usage Data: Essential facts about the computer and video game industry," retrieved December 1, 2008 from http://www.theesa.com/facts/pdfs/ESA_FF_2008.pdf. Compared to their 2006 report, this gender gap has shrunk, slightly; it had been 52% male, 38% female. These figures come from the Entertainment Software Association's latest release about the industry, "2006 Sales, Demographics and Usage Data: Essential facts about the computer and video game industry," retrieved October 22, 2006 from http://www.theesa.com/archives/files/Essential%20Facts%202006.pdf.

(3) It was beyond the scope of this paper to discuss the full two decades worth of research on this question. The reader is encouraged to sample any of the studies listed in Table 1 or Table 2 as they pertain to the gratifications and game features researched and used to inform this study.

(4) Studies that have sought to understand these gratifications and game features from a qualitative approach have included using interviews, focus groups, and field observations: Fabricatore et al, 2002; Griffiths, 1991; Malone, 1981a, b; Mudrock, 1985; Phillips et al, 1995. Studies that have applied categories unto game players engagements from a quantitative approach have included: Chang, Lee & Kim, 2006; Chou & Tsai, 2007; Kim & Choi, 2005. Studies have also been done that were influenced by both methodologies in their attempt to answer these questions: Jones, 2003; Myers, 1990; Sweetser & Johnson, 2004.

(5) When media use, and in particular digital games engagement, studies have considered situation, it was largely by considering situation as a box. The box's features, or context, then impacted the overall engagement. For example: Knobloch-Westerwick & Alter, 2006; Myers, 1990.

(6) It deserves brief mention to emphasize that the conceptualization of situational differences we use here is one that treats the situation with a single attribute that deals less with the actual lived experience of game players than with the outcome of their playing. The literatures we draw on in the "information seeking in context" community focus far more on describing situational differences in terms of aspects that pertain more to processes rather than outcomes.

REFERENCES

Carter, R. F. (2003). Communication: a harder science. In B. Dervin & S. Chaffee (Eds.), Communicating, a different kind of horse race: Essays honoring Richard F. Carter (pp. 369-376). Cresskill, NJ: Hampton Press.

Chang, B.H., Lee, S.E., & Kim, B.S. (2006). Exploring factors affecting the adoption and continuance of online games among college students in South Korea: Integrating uses and gratifications and diffusion of innovation approaches. New Media and Society, 8(2), p. 295-319.

Chou, C. & Tsai, M.J. (2007). Gender differences in Taiwan high school students' computer game playing. Computer in Human Behavior, 23, p. 812-824.

Colwell, J., Grady, C., & Rhaiti, S. (1995). Computer games, self-esteem and gratifications of needs in adolescents. Journal of Community and Applied Social Psychology, 5, p. 195-206.

Crawford, C. (1984). The Art of Computer Game Design. Berkeley, CA: Osborne/McGraw-Hill.

Davis, J. (2002). Understanding the social and cultural processes behind the continual male dominance of computer and video game production and consumption. Retrieved 11/6/05, from http://www.gamasutra.com/education/theses/20020708/davies_01.shtml

Denham, B.E. (2004). Toward an explication of media enjoyment: The synergy of social norms, viewing situations, and program content. Communication Theory, 14(4), p. 370-387.

Dervin, B. & Foreman-Wernet, L. (Eds.). (2003). Sense-Making methodology reader: Selected writings of Brenda Dervin. Cresskill, NJ: Hampton Press.

Dervin, B. & Song, M. (2005). Reaching for phenomenological depths in uses and gratifications research: A quantitative empirical investigation. Presented at the 2005 International Communication Association, New York, NY.

Fabricatore, C., Nussbaum, M. & Rosas, R. (2002). Playability in action videogames: A qualitative design model. Human-Computer Interaction, 17, p. 311-368.

Fisher, K., Naumer, C., Durrance, J., Stromski, L. & Christiansen, T. (2005). Something old, something new: preliminary findings from an exploratory study about people's information habits and information grounds. Information Research, 10(2), http://informationr.net/ir/10-2/paper223.html.

Funk, J.B. (2001). Girls just want to have fun. Retrieved 4/15/05 from http://culturalpolicy.uchicago.edu/conf2001/papers/funk2.html

Greenberg, B., Sherry, J., Lachlan, K., Lucas, K. & Holmstrom, A. (2005). Orientations to video games among gender and age groups. Originally presented at the National Communication Association annual conference, 2003, Miami, FL.

Griffiths, M.D. (1991a). The observational analysis of adolescent gambling in U.K. amusement arcades. Journal of Community and Applied Social Psychology, 1(3), p. 309-320.

Griffiths, M.D. (1991b). Are computer games bad for children? The Psychologist Bulletin: Bulletin of the British Psychology Society, 6, p. 401-407.

Griffiths, M.D. (1997). Computer game playing in early adolescence. Youth and Society, 29(2), p. 223-237.

Hartmann, T. & Klimmt, C. (2006). Gender and computer games: Exploring females' dislikes. Journal of Computer-Mediated Communication, 11(4), p. 910-931.

Holson, L.M. (2005, Oct. 24th). "King Kong" blurs line between films and games. New York Times, retrieved 10/25/05 from http://www.nytimes.com/2005/10/24/technology/24kong.html

Jacobs, G. & Ip, B. (2003). Matching games to gamers with quality function deployment. Total Quality Management and Business Excellence, 14(9), p. 959-967.

Jones, S. (2003). Let the games begin: Gaming technology and entertainment among college students. Pew Internet & American Life Project. Retrieved on October 15, 2006, from http://www.pewinternet.org/PPF/r/93/report_display.asp.

Kafai, Y.B. (1998). "Video game designs by girls and boys: Variability and consistency of gender differences." (pp. 90-114). In J. Cassell & H. Jenkins (Eds.). From Barbie to Mortal Kombat: Gender and computer games. Cambridge, MA: The MIT Press.

Kayany, J.M., Wotring, C.E. & Forrest, E.J. (1996). Relational control and interactive media choice in technology-mediated communication situations. Human Communication Research, 22(3)., p. 399-421.

Kim, K. & Choi, M. (2005). Exploring the determinants of playing online games in Korea. Asian Communication Research, 3, p. 70-91.

Kline, S. & Arlidge, A. (2003, January). Online gaming as emergent social media: A survey. Retrieved 11/6/05 from http://www2.sfu.ca/media-lab/onlinegaming/report.htm

Knobloch-Westerwick, S. & Alter, S. (2006). Mood adjustment to social situations through mass media use: How men ruminate and women dissipate angry moods. Human Communication Research, 32(1), p. 58-73.

Lazzaro, N. (2004). Why we play games: The four keys to player experience. Retrieved 11/6/05 from http://www.gamasutra.com/gdc2004/features/20040326/postcard-kane_04.shtml

Lucas, K. & Sherry, J. (2004). Sex differences in video game play: A communication-based explanation. Communication Research, 31(5), p. 499-523.

Malone, T.W. (1981a). Toward a theory of intrinsically motivating instruction. Cognitive Science, 4, p. 333-369.

Malone, T.W. (1981b). What makes compute games fun? Byte, 6(12, December), p. 258-277.

Malone, T. W., & Lepper, M. R. (1987). "Making learning fun: A taxonomy of intrinsic motivations for learning." (pp. 223-253). In R. Snow, P. Federico & W. Montague (Eds.) Aptitude, learning and instruction. Volume 3: Connative and affective process analysis. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Martinson, A.M. (2002). Playing with technology: Designing gender sensitive games to close the gender gap. Retrieved 1/20/05 from http://www.slis.indiana.edu/research/working-papers/abstracts.html

Mehrabian, A. & Wixen, W. (1986). Preferences for individual video games as a function of their emotional effects on players. Journal of Applied Social Psychology, 16(1), p. 3-15.

Mudrock, L.A. (1985). What motivates children to play video games? Master's Thesis, Ohio State University.

Myers, D. (1990). A Q-study of game player aesthetics. Simulation and Gaming, 21(4), p. 375-396.

Palmgreen, P. & Rayburn, J. (1982). Gratifications sought and media exposure: An expectancy value model. Communication Research, 9(4), p. 561-580.

Phillips, C., Rolls, S., Rouse, A. & Griffiths, M. (1995). Home video game playing in schoolchildren: A study of incidence and patterns of play. Journal of Adolescence, 18(6), p. 687-691.

Rayburn, J. & Palmgreen, P. (1984). Merging uses and gratifications and expectancy-value theory. Communication Research, 11(4), p. 537-562.

Reinhard, C.D. (2005). Hypersexualism in digital games as a determinant or deterrent of gameplay: Do men want them and do women want to be them? Master's Thesis, Ohio State University.

Reinhard, C. D. (2008). *Gendered media engagings as user agency mediations with sociocultural and media structures: A Sense-Making Methodology study of the situationality of gender divergences and convergences.* Doctoral dissertation, Ohio State University, 2008.

Rouse, R. (2001). Game Design: Theory and practice. Plano, TX: Wordware Publishing.

Rubin, A.M. (1993). Audience activity and media use. Communication Monographs, 60, p. 203-209.

Rubin, A.M. (2002). "The uses-and-gratifications perspective of media effects." (pp. 525-548.) In J. Bryant & D. Zillmann (Eds.). Media Effects: Advances in theory and research. Mahway, NJ: Lawrence Erlbaum Assoc.

Savolainen, R. (2004). Enthusiastic, realistic and critical: discourses of Internet use in the context of everyday life information seeking. Information Research, 10(1), retrieved October 22, 2006, from http://informationr.net/ir/10-1/paper198.html

Savolainen, R. (2006). Spatial factors as contextual qualifiers of information seeking. Information Research, 11(4), retrieved October 22, 2006, from http://informationr.net/ir/11-4/paper261.html.

Schneider, E., Lang, A., Shin, M. & Bradley, S. (2004). Death with a story: How story impacts emotional, motivational, and physiological responses to first-person shooter video games. Human Communication Research, 30(3), p. 361-375.

Selnow, G.W. (1984). Playing videogames: The electronic friend. Journal of Communication, 34(2), p. 148-156.

Sherry, J. (2004). Flow and media enjoyment. Communication Theory, 14(4), p. 328-347.

Sherry, J., Lucas, K., Greenberg, B. & Lachlan, K. (2006). "Video game uses and gratifications as predictors of use and game preference." In P. Vorderer & J. Bryant (Eds.) Playing Computer Games: Motives, responses, and consequences. Mahwah, NY: Erlbaum.

Swanson, D.L. (1992). Understanding audiences: Continuing contributions of gratifications research. Poetics, 21, p. 305-328.

Sweetser, P.I. & Johnson, D. (2004). "Player-centered game environments: Assessing player opinions, experiences, and issues." (pp. 321-332). In M. Rauterberg (Ed.). Entertainment Computing - I.C.E.C. 2004: Third International Conference, Eindhoven, The Netherlands, September 1-3, 2004. New York, NY: Springer.

Vakkari, P., Savolainen, R., & Dervin, B. (Eds.) (1997). Information seeking in context. London: Taylor Graham.

Wendel, S. & Dellaert, B.G.C. (2005). Situation variation in consumers' media channel consideration. Journal of the Academy of Marketing Science, 33(4), p. 575-584.

Wigand, R.T., Borstelmann, S.E. & Boster, F.J. (1985). Electronic leisure: Video game usage and the communication climate of video arcades. Communication Yearbook, 9, p. 275-293.

Wood, R.T.A., Griffiths, M.D., Chappell, D. & Davies, M.N.O. (2004). The structure characteristics of video games: a psycho-structural analysis. CyberPsychology & Behavior, 7(1), p. 1-10.

Yee, N. (2004). The Daedalus Project: A model of player motivations. Retrieved 11/6/05 from http://www.nickyee.com/daedalus/archives/001298.php?page=4

Table 1. Game Playing Gratification scale items and sources used to generate categories.

	Scale Items	Sources
Game Playing Gratification		
Fantasy	being able to explore places I normally couldn't	Malone (1981a, 1981b); Crawford (1984); Mudrock (1985); Marlone & Lepper (1987); Myers (1990); Rouse (2001); Lazarro (2004); Yees (2004); Greenberg et al (2005); Sherry et al (2005)
	being able to do something I normally can't	
Competition	having bragging rights over others	Crawford (1984); Griffiths (1991a, 1991b, 1997);Rouse (2001); Lazarro (2004); Yee (2004); Greenberg et al (2005); Sherry et al (2005)
	showing off my skill to others	
	being able to improve my skills over others	
Challenge	being able to sharpen my skills	Crawford (1984); Murdock (1985); Wigand et al (1985); Myers (1990); Griffiths (1991a, 1991b, 1997); Rouse (2001); Kline & Arlidge (2003); Lazarro (2004); Yee (2004); Greenberg et al (2005); Sherry et al (2005)
	challenging myself to do better	
	pushing myself to overcome obstacles	
Socializing	being with someone else while playing	Crawford (1984); Selnow (1984); Griffiths (1997); Jones (2003); Kline & Arlidge (2003); Lazarro (2004); Yee (2004); Greenberg et al (2005); Sherry et al (2005)
	sharing the experience with others	
	playing with others (friends, family, etc)	
	playing as a reason to hang out with others	
Solitude	that it's an alternative for someone being there	Selnow (1984); Rouse (2001)
	being able to spend time alone	
	being able to ease loneliness	
Mood Management	that playing reduced any stress I feel	Wigand et al (1985); Mehrabian & Wixen (1986); Griffiths (1991a, 1991b); Phillips et al (1995); Lazarro (2004); Yee (2004); Greenberg et al (2005); Sherry et al (2005)
	using the game to cheer myself up	
	getting pumped up by the game	
Diversion	being able to make time pass by	Griffiths (1991a, 1991b, 1997); Phillips et al (1995); Greenberg et al (2005); Sherry et al (2005)
	avoiding doing other things I had to do	
	being able to prevent boredom	

Table 2. Game Feature Preferences, scale items and sources used to generate categories.

	Scale Items	Sources
Game Feature Preferences		
Appearance	the level of detail in the graphics	Marlone (1981a); Mudrock (1985); Griffiths (1997); Jones (2003); Kline & Arlidge (2003); Sweetser & Johnson (2004); Kim & Choi (2005); Greenberg et al (2005)
	the sound design (effects and music)	
	how realistic the game looks	
Narrative	the game's story	Kline & Arlidge (2003); Schneider et al (2004); Reinhard (2005)
	identifying with the characters	
Characters	what the character I play was capable of	Davis (2002); Fabricatore et al (2002); Kline & Arlidge (2003); Yee (2004)
	having interesting characters in the game	
	what my character looked like	
Control	playing, not watching, the game	Jones (2003); Marlone & Lepper (1987); Rouse (2001); Davis (2002); Sherry (2004); Sweetser & Johnson (2004)
	having greater choice over what I could do	
	responding to what I wanted to do	
Complexity	that it's easy to learn, but hard to master	Malone (1981a, 1981b); Marlone & Lepper (1987); Rouse (2001); Davis (2002); Fabricatore et al (2002); Yee (2004)
	having as much a chance to succeed as fail	
	that it's not totally difficult to figure out	
Immersion	being able to feel immersed in the game	Rouse (2001); Schneider et al (2004); Sweetser & Johnson (2004); Reinhard (2005);
	being able to really get into the game	
Curiosity	not repeating what I had already mastered	Malone (1981a); Malone & Lepper (1987); Myers (1990); Rouse (2001)
	that what happened was always something new	
	being kept wondering what comes next	

Table 3. Gender by Game Playing Situations repeated measure results for all Game Playing Gratifications.

Game Playing Gratification	Game Playing Situation	Overall Means		Female (n=108)		Male (n=105)		Gender F-score*	Game Situation F-score**	Interaction F-score**	
Fantasy	Liked	3.60	b	2.80	b	4.43	b	28.13 <.001	112.21 <.001	5.02	<.01
	Disliked	2.50	a	2.15	a	2.87	a				
	Desired	4.89	c	4.49	c	4.89	c				
	Overall	3.67		3.15		4.20					
Competition	Liked	4.09	b	3.30	b	4.90	b	25.48 <.001	138.33 <.001	6.44	<.01
	Disliked	2.34	a	2.04	a	2.66	a				
	Desired	4.67	c	4.27	c	5.07	b				
	Overall	3.70		3.20		4.21					
Challenge	Liked	4.50	b	3.92	b	5.09	b	18.53 <.001	163.44 <.001	3.28	<.05
	Disliked	2.50	a	2.18	a	2.83	a				
	Desired	4.95	c	4.72	c	5.17	b				
	Overall	3.98		3.61		4.37					
Socializing	Liked	4.47	b	3.94	b	5.02	b	18.64 <.01	108.84 <.001	3.65	<.05
	Disliked	2.85	a	2.67	a	3.03	a				
	Desired	5.09	c	4.93	c	5.26	b				
	Overall	4.14		3.85		4.44					
Solitude	Liked	3.46	b	2.89	b	4.04	b	21.56 <.001	94.47 <.001	1.27	n.s.
	Disliked	2.28	a	1.90	a	2.67	a				
	Desired	4.13	c	3.75	c	4.52	c				
	Overall	3.06		2.56		3.59					
Mood Management	Liked	4.26	b	3.66	b	4.87	b	19.33 <.001	179.00 <.001	4.15	<.05
	Disliked	2.32	a	2.08	a	2.56	a				
	Desired	5.00	c	4.76	c	5.25	c				
	Overall	3.86		3.50		4.23					
Diversion	Liked	4.85	b	4.55	b	5.15	b	7.37 <.05	156.12 <.001	0.13	n.s.
	Disliked	2.71	a	2.46	a	2.96	a				
	Desired	4.98	b	4.76	b	5.22	b				
	Overall	4.18		3.92		4.44					

* df (1, 211), ** df (2, 211). Differences between Game Playing Situations tested within each Gender using paired t-tests. Those means that were significantly different are indicated by different letters at p<.05 or better.

Table 4. Gender by Game Playing Situations repeated measure results for all Game Feature Preferences.

Game Feature Preference	Game Playing Situation	Overall Means		Female (n=108)		Male (n=105)		Gender F-score*	Game Situation F-score**	Interaction F-score**
Appearance	Liked	4.00	b	3.21	b	4.81	b	25.90 <.001	141.60 <.001	6.86 <.001
	Disliked	2.57	a	2.26	a	2.89	a			
	Desired	5.14	c	4.84	c	5.46	c			
	Overall	3.90		3.44		4.39				
Narrative	Liked	3.42	b	2.75	b	4.11	b	21.41 <.001	130.50 <.001	3.48 <.05
	Disliked	2.29	a	1.98	a	2.60	a			
	Desired	4.80	c	4.46	c	5.14	c			
	Overall	3.50		3.06		3.95				
Characters	Liked	3.81	b	3.22	b	4.41	b	14.64 <.001	123.91 <.001	3.46 <.05
	Disliked	2.48	a	2.19	a	2.77	a			
	Desired	4.93	c	4.73	c	5.14	c			
	Overall	3.74		3.38		4.11				
Control	Liked	4.12	b	3.63	b	4.63	b	17.46 <.001	166.13 <.001	1.30 n.s.
	Disliked	2.45	a	2.18	a	2.73	a			
	Desired	5.08	c	4.75	c	5.42	c			
	Overall	3.88		3.52		4.26				
Complexity	Liked	4.18	b	3.80	b	4.57	b	11.38 <.001	154.26 <.001	0.50 n.s.
	Disliked	2.48	a	2.25	a	2.72	a			
	Desired	5.00	c	4.71	c	5.30	c			
	Overall	3.89		3.59		4.20				
Immersion	Liked	4.62	b	3.93	b	5.32	b	53.93 <.001	179.38 <.001	2.46 <.10 n.s.
	Disliked	2.41	a	2.06	a	2.77	a			
	Desired	5.31	c	4.86	c	5.77	c			
	Overall	4.11		3.61		4.62				
Curiosity	Liked	3.80	b	3.23	b	4.39	b	15.32 <.001	146.98 <.001	3.11 <.05
	Disliked	2.41	a	2.17	a	2.65	a			
	Desired	5.04	c	4.80	c	5.29	c			
	Overall	3.75		3.40		4.11				

* df (1, 211), ** df (2, 211). Differences between Game Playing Situations tested within each Gender using paired t-tests. Those means that were significantly different are indicated by different letters at p<.05 or better.

Table 5. Gender differences within each Game Playing Situation on all Game Playing Gratifications.

Game Playing Gratification	Gender	Liked Game		Disliked Game		Desired Game	
		Mean	F-score*	Mean	F-score*	Mean	F-score*
Fantasy	Female	2.80	35.12	2.06	6.31	4.49	10.39
	Male	4.42	<.001	2.87	<.01	5.30	<.001
Competition	Female	3.30	36.17	2.04	5.18	4.27	10.61
	Male	4.90	<.001	2.66	<.05	5.07	<.001
Challenge	Female	3.92	26.50	2.10	5.95	4.72	3.85
	Male	5.09	<.001	2.83	<.05	5.17	<.05
Socializing	Female	3.94	14.98	2.67	1.41	4.93	1.94
	Male	5.02	<.001	3.03	n.s.	5.26	n.s.
Solitude	Female	2.89	25.31	1.90	8.53	3.75	9.36
	Male	4.04	<.001	2.67	<.01	4.52	<.01
Mood Management	Female	3.66	29.63	2.08	3.28	4.76	4.98
	Male	4.87	<.001	2.56	n.s.	5.25	<.05
Diversion	Female	4.55	5.88	2.46	3.13	4.76	4.03
	Male	5.15	<.05	2.96	n.s.	5.22	<.05

* df (1, 211)

Table 6. Gender differences within each Game Playing Situation on all Game Feature Preferences.

Game Feature Preference	Gender	Liked Game		Disliked Game		Desired Game	
		Mean	F-score*	Mean	F-score*	Mean	F-score*
Appearance	Female	3.21	41.68	2.26	4.90	4.84	6.82
	Male	4.81	<.001	2.89	<.05	5.46	<.01
Narrative	Female	2.75	24.95	1.98	5.54	4.46	7.41
	Male	4.81	<.001	2.60	<.05	5.14	<.01
Characters	Female	3.22	20.51	2.19	4.50	4.73	2.73
	Male	4.41	<.001	2.77	<.05	5.14	n.s.
Control	Female	3.63	18.31	2.18	4.34	4.75	8.14
	Male	4.63	<.001	2.73	<.05	5.42	<.01
Complexity	Female	3.80	9.64	2.25	3.03	4.71	7.03
	Male	4.57	<.01	2.72	n.s.	5.30	<.01
Immersion	Female	3.93	30.14	2.06	6.80	4.86	14.14
	Male	5.32	<.001	2.77	<.01	5.77	<.001
Curiosity	Female	3.23	21.20	2.17	3.19	4.80	4.25
	Male	4.34	<.001	2.65	n.s.	5.29	<.05

* df (1, 211).

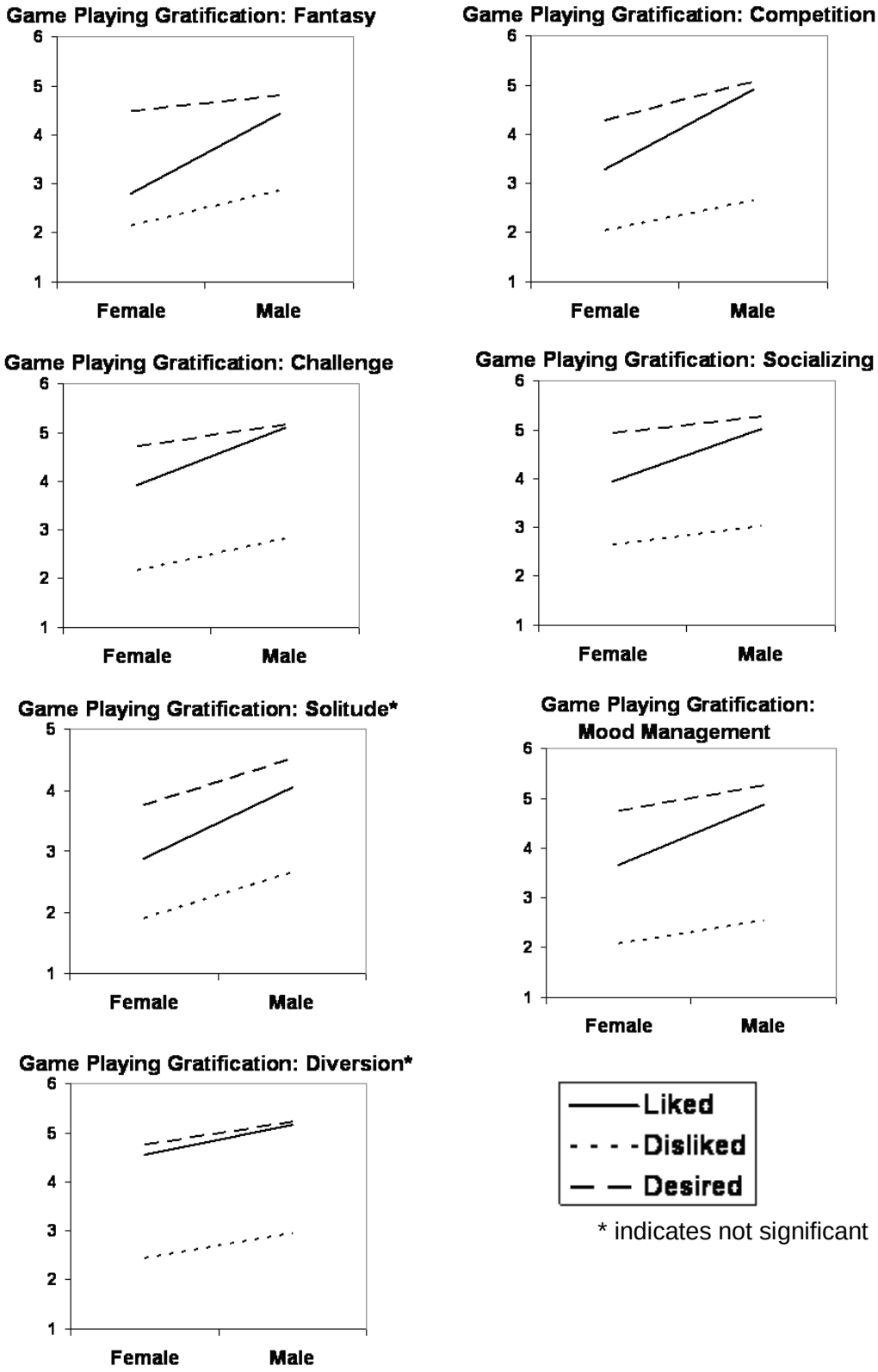

Figure 1. Interaction of Gender by Game Playing Situation for the Game Playing Gratifications.

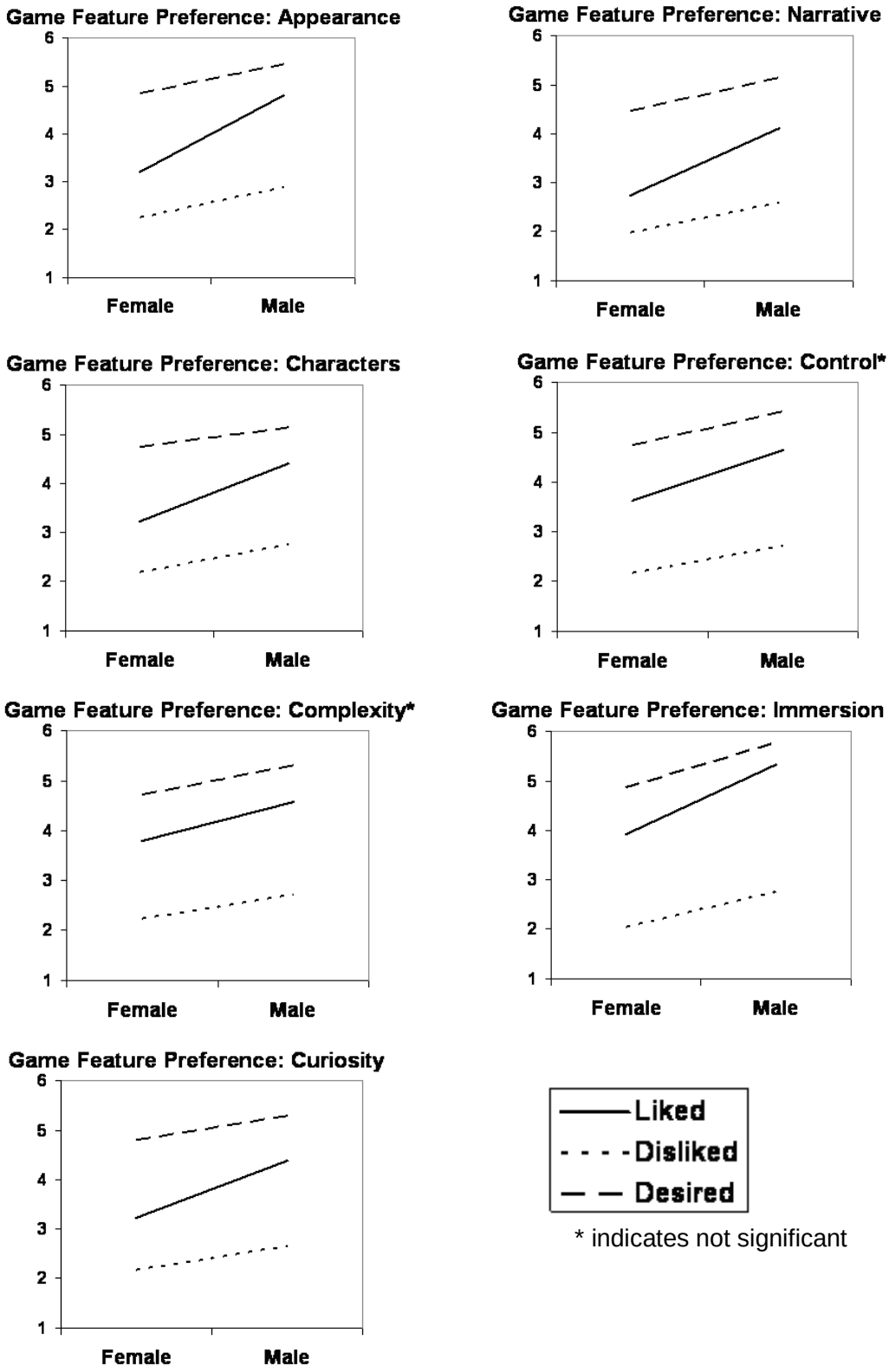

Figure 2. Interaction of Gender by Game Playing Situation for the Game Feature Preferences.